# medmix ECO design principles deliver next generation of sustainable cartridges

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**How sustainable is a product? In the case of solid cartridges for liquid application and mixing, medmix is offering its customers proven solutions. For nearly a decade, the business has built its ECO design principles, while delivering physical products that offer minimized carbon footprints backed by independent assessments. As a result, industry and construction can now make informed, low-carbon choices regarding adhesive and sealant packaging.**

In 2013, medmix previewed a new solid cartridge – the first to market with a sustainable design ethos at its core. The cartridge featured 30% biopolymer in its construction, including wood and bamboo fibers. This breakthrough began a story of innovation at the company which would lead to a new generation of sustainable products guided by the ECO design principles.

“Early on, it was clear that we needed to create a robust, integrated sustainability strategy across medmix,” Jim Giger, Head of Technology Development at medmix explains. “We had to gain accurate data, build new systems and champion sustainable principles. This new approach became our ECO design principles, and the products that resulted from them.”

**Driven by data**

medmix began by building engineering teams dedicated to sustainability. These teams formed collaborations with universities, government research initiatives and other experts to carry out in-depth studies on relevant sustainability topics for solid cartridges. These included assessing new materials and looking at new production processes.

*"Sustainability is such a wide topic. You need access to expert knowhow. With our research partners in Switzerland, Germany and Austria, we were able to gain a large quantity of data regarding all aspects of solid cartridge design, manufacture and distribution. Furthermore, working with companies from different markets as part of government research projects allowed us to share our findings, helping to guide the industry in terms of sustainable innovation,"* Jim says.

With the hard data gathered, medmix began to develop its ECO design criteria and lifecycle analysis (LCA) approach.

**The ECO design process**

*"We refer to the start of product development as the exploration phase," Jim adds. "Here, we assess the ideas from our customers, suppliers and engineers. To ensure that sustainability is at the forefront of this process, we introduced a checklist of relevant criteria, which we could stack our ideas against."*

The medmix sustainability checklist covers multiple topics from raw materials, processing, design, transport, usage and end of life. This

allows project engineers to filter ideas ready for the next stage of the process.

*"Using our own research data or industry averages where required, we then conduct an LCA as part of the product development process. We utilize advanced LCA software to carry this out in terms of materials and processes. The results give us hard data on the carbon reductions we can achieve. This can be very specific, for example, comparing the energy consumption of injection molding processes for different sustainable materials,"* Jim explains.

This LCA work allows medmix design engineers to directly see the benefits of different material options, reduced componentry or weight, low-carbon energy sources, optimized manufacturing processes, recycling and less secondary packaging. It delivers visible data on the potential sustainability benefits of a product, which can be shared transparently within the team or with customers and suppliers.

**The next generation**

The success of medmix's sustainability approach is illustrated by physical products.

A good example currently on the market is the MIXPAC™ ecopaCC™ for adhesives and sealants. Recently assessed in an independent LCA, the foil cartridge was proven to result in less than a quarter of the total gCO2-

eq emissions compared to a solid cartridge of similar size. This incorporates emissions from materials, manufacturing, and distribution.

Of further relevance to our narrative is the all-new GreenLine solid cartridge. Expected in early 2022, its new PCR PP design ensures that it produces 2.78 kg CO2-eq per 100, compared to 4.40 kg CO2-eq per 100 for a similar cartridge using virgin materials – equating to a 36.9% CO2-eq emission reduction.

medmix is also employing its ECO design principles to componentry. The company has redesigned its bayonet rings, a device for sealing the cap or connecting a mixer, to use more sustainable PCR PP material. This has reduced equivalent carbon emissions compared to a virgin material bayonet ring by 62.5%.

*"Beyond having the available metrics to illustrate how sustainable our solutions are thanks to our ECO design approach, these products also show we can reduce carbon emissions without any compromise in performance. Cartridges spend a long time in contact with adhesives and sealants, which is challenging from a chemical standpoint, while the bayonet ring is subjected to high pressure during use, which mandates mechanical strength. The fact we can deliver these critical components while reducing environmental impact is fantastic,"* says Gerry Hernandez, Head of Global Product Management Industry at medmix.

**The future**

Any sustainability strategy is a continual journey. medmix is looking to the future regarding key environmental issues, helping to guide wider industry.

*"Legislation is changing around secondary packaging; recent directives introduced in Italy and Slovenia, for example, are expected to become more widespread, so we are working to ensure our products offer the correct alphanumeric codes to comply with these standards,"* Gerry explains.

By being at the forefront of sustainability in its sector and delivering physical products to market, medmix has employed its data-driven ECO design principles to provide its customers with truly sustainable choices. However, a focus on new technology has meant ECO design comes with leading performance and quality.

**Image captions:**

**Image 1:** The success of medmix's sustainability approach is illustrated by physical products, like the ecopaCC™

**Image 2:** medmix ECO design principles deliver next generation of sustainable cartridges

**About medmix**

medmix is a global leader in high-precision delivery devices. We occupy leading positions in the healthcare, consumer, and industrial end-markets. Our customers benefit from a dedication to innovation and technological advancement that has resulted in over 900 active patents. Our 13 production sites worldwide together with our highly motivated and experienced team of 1,900 employees provide our customers with uncompromising quality, proximity, and agility. medmix is headquartered in Zug, Switzerland.

Our shares are traded on the SIX Swiss Exchange (SIX: MEDX). www.medmix.swiss

medmix Industry delivers the world's leading hand-held mixing and dispensing systems for adhesives and sealants. Through MIXPAC™, COX™ and MK™ we specialize in the mixing and hand-held dispensing of adhesives and sealants.We have strong partnerships with industrial manufacturing, production, coating, and construction leaders that have lasted for close to 100 years.

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